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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,585	12/15/2003	Michael Bock	EFFERT-1	1385

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MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
2200 CLARENDON BLVD.
SUITE 1400
ARLINGTON, VA 22201

EXAMINER

RAMIREZ, JOHN FERNANDO

ART UNIT	PAPER NUMBER
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3737

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/734,585	Applicant(s) BOCK ET AL.	
	Examiner John F. Ramirez	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

After a review of applicant's remarks, all necessary changes to the claims and specifications have been entered. Accordingly, the examiner of record has withdrawn the objection to request the submittal of the translation of the foreign document, GERMAN PATENT No. 102 603 72.3.

Applicant's arguments filed February 2, 2006 have been fully considered but they are not persuasive. Therefore, the following new office action is provided to expedite the prosecution of this application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Foo et al. (US 6,408,201).

Foo et al. substantially discloses all claimed features in claims 1-15.

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Concerning to Claims 1-8, Foo et al. discloses a nuclear spin tomography device to obtain data for locally-resolved imaging of the magnetic resonance behavior of the atomic nuclei in a selected field of view in a body, the device being made and programmed such that the body can be exposed by the device to high frequency and magnetic field gradient echo pulse sequences that produce magnetization in a body such that the magnetization of a medium that is flowing in at least one direction in space in the body can be attenuated by dephasing the spins of the atomic nuclei in the medium (Abstract), wherein the gradient echo pulse sequences are calculated such that an additional gradient contribution in each direction in spatial in which the medium is flowing in the body is added to a gradient echo pulse sequence needed for spatial coding in each direction of space without influencing the space coding, the gradient moment of the first order M_1 of the respective gradient echo pulse sequence being maximized by setting the gradient field intensity and the slew rate to a respective maximum value (col. 3, line 31- col. 4, line 60), and an MR contrast medium that is taken up by the body, magnetization of the medium flowing in at least one direction in space in the body can be attenuated by dephasing of the spins by gradient moments of order i $M_i(t)$ being maximized in this direction in space according to the following relation:

$$M_i(t) = \gamma \cdot \int_0^t G(t') \cdot t'^i dt'$$

whereby, i is an integer greater than zero, γ is the gyromagnetic ratio of the atomic nuclei, $G(t')$ is a time-dependent gradient field intensity in this direction in space and t is

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the time interval that has passed since the emission of a high frequency pulse for excitation of the atomic nuclei (col. 3, lines 31-49; col. 9 line 19 – col. 12, line 50), wherein the magnetization of the medium flowing in at least one direction in space in the body can be attenuated by dephasing of the spins in that gradient moments of the first order $M_1(t)$ are maximized in this direction in space according to the following relation (col. 3, lines 31-49; col. 9 line 19 – col. 12, line 50):

$$M_1(t) = \gamma \cdot \int_0^t G(t') \cdot t' dt'$$

, wherein gradient echo pulse sequences can be produced in the respective directions in space by inserting the flow dephasing gradient pulses into flow-compensated imaging gradient echo pulse sequences (col. 3, lines 31-49), wherein M_1 satisfies the following relation: $M_1(t; G_{bipolar}, tramp, t_{plateau}, t_{sep}) = \gamma \cdot G_{bipolar} \& (tramp + t_{plateau}) \cdot (2tramp + t_{plateau} + t_{sep})$ (Figure 4, col. 7, line 61 – col. 9, line 18), wherein the device is a static magnet, gradient devices for producing gradient pulses in three directions in space that are orthogonal to one another (col. 7, lines 60-67), a transmission device for producing high frequency signals, a receiving device for high frequency signals, a device for triggering gradient devices and the transmission device, an evaluation device, and a display device (Fig. 1), wherein the MR contrast medium can be administered intravenously to a human or animal body (col. 7, lines 24-34), wherein the MR contrast medium is lymph-passable and/or plaque-passable (Abstract).

In regards to claims 9-15, Foo et al. teaches all the structures as set forth above.

The process concerning the steps of (1) locally-resolved imaging of the magnetic resonance behavior of the atomic nuclei in a selected field of view in a body, (2) the device being made and programmed such that the body can be exposed by the device to high frequency and magnetic field gradient echo pulse sequences that produce magnetization in a body such that the magnetization of a medium that is flowing in at least one direction in space in the body can be attenuated by dephasing the spins of the atomic nuclei in the medium, (3) an MR contrast medium that is taken up by the body, (4) wherein the gradient echo pulse sequences are calculated such that an additional gradient contribution in each direction in spatial in which the medium is flowing in the body is added to a gradient echo pulse sequence needed for spatial coding in each direction of space without influencing the space coding, (5) the gradient moment of the first order M_1 of the respective gradient echo pulse sequence being maximized by setting the gradient field intensity and the slew rate to a respective maximum value, (6) magnetization of the medium flowing in at least one direction in space in the body can be attenuated by dephasing of the spins by gradient moments of order i $M_i(t)$ being maximized in this direction in space, (7) gradient echo pulse sequences can be produced in the respective directions in space by inserting the flow dephasing gradient pulses into flow-compensated imaging gradient echo pulse sequences, (8) wherein M_1 satisfies the following relation: $M_1(t; G_{bipolar}, tramp, t_{plateau}, t_{sep}) = \gamma \cdot G_{bipolar} \cdot (tramp + t_{plateau}) \cdot (2tramp + t_{plateau} + t_{sep})$, (9) wherein the MR contrast medium can be administered intravenously to a human or animal body, (10) wherein the MR

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contrast medium is lymph-passable and/or plaque-passable, would be inherently met by the disclosure.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Ramirez whose telephone number is (571) 272-8685. The examiner can normally be reached on (Mon-Fri) 7:30 - 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JFR
03/23/06


BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700